

# The Canadian Engineer

*A weekly paper for engineers and engineering-contractors*

## LAYING TORONTO'S SECOND INTAKE PIPE

PLACING 2400 FEET OF 6-FOOT PIPE ON THE BED OF LAKE ONTARIO, AND CONCRETING IT INTO PLACE—CONTRACTOR'S PLANT REQUIRED—SPEED OF CONSTRUCTION

IN June, 1911, the City of Toronto called for tenders for the laying of a 6-foot riveted steel pipe from the filtration plant, situated on Toronto Island, to a point in Lake Ontario, about 2,400 feet from the Island shore. Early in August of that year, the contract was awarded to Messrs. Roger Miller & Sons, Limited, Toronto. It was in the nature of a lump sum contract, varying from the original specifications to the extent of the substitution of steel for 6 by 8-inch wooden piling throughout.

### General Progress of the Work.

During the autumn months of 1911, work was begun, the operations centering chiefly upon the excavation necessary at Toronto Island, beginning at the north end adjacent to the new pumping station, and extending toward the south shore of the Island. The excavation was first made to a depth of 15 feet below lake level, and was about 85 feet in width at the water line. Fig. 1, looking south toward the lake, shows the greater part of this Island excavation. The work entailed the removal of some 20,000 yards of excavation, principally sand.

This portion of the pipe line was designed to include a tank near the shore to serve as a manhole for pipe inspection. It measures 11 feet by 8 feet 6 inches, with a depth of 24 feet. The placing of this tank in its proper position was greatly facilitated by the use of coffer-dams, which were in progress simultaneously with the Island excavation, so that by the time the latter was finished the tank was in place, and pipe-laying was in no way delayed.

One length of pipe was put in by December, 1911, and connected up with the tank. The water was particularly low at the time, the top of the pipe being only 4 feet below water level. Pipe-laying operations were, therefore, necessarily discontinued as extreme weather set in.

With the opening of spring, the contractor's plant

had been put in shape, and work began with the season. Owing to a revision of the plans by the city, necessitating the lowering of the pipe line through the Island to the same level as that extending from the tank outward into the lake, after three lengths of pipe were laid work was discontinued. The pipes and tank were taken out, and the excavation was extended to a further depth of 6 feet, bringing it to an average of 21 feet below the water line. The removed portions of the line were then re-set and connections

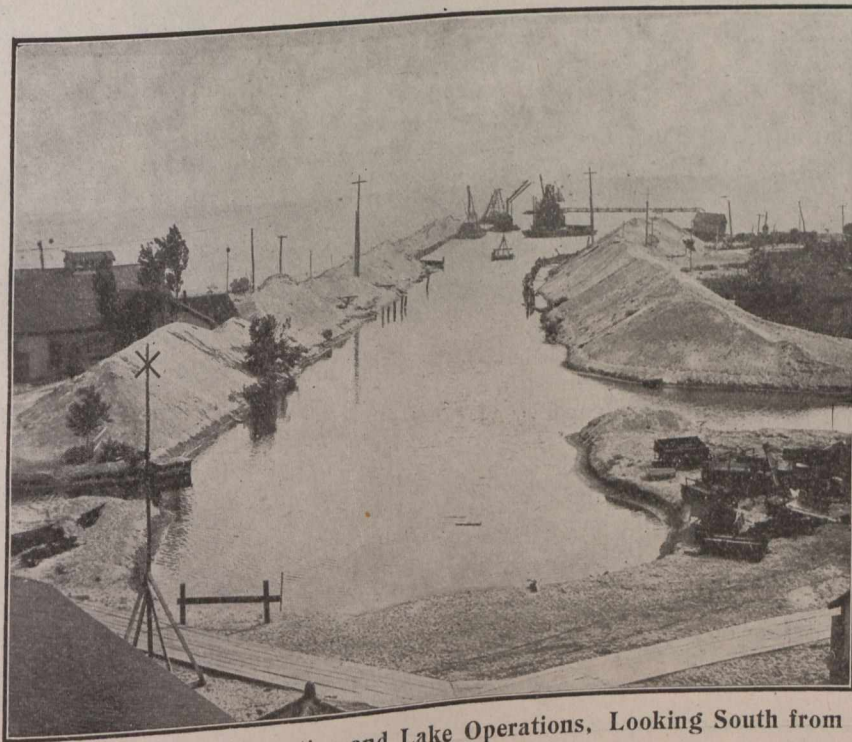


Fig. 1.—Island Excavation and Lake Operations, Looking South from Filtration Plant.

made with the filtration plant, as shown in Fig. 2.

Remarkable progress was made with the work during the summer months of 1912, despite a good deal of adverse lake weather. The entire line was laid, steel piles driven, crib placed, and the whole length concreted out into the lake as far as indicated in Fig. 3. The pipe line was ready for use by the end of January, 1913, and the job was completed with the exception of a small amount of back fill, which was placed in a short time in the early spring.

**Description of Contractor's Plant.**—During the winter months of 1911-12, the contractors built the required plant for carrying out the work in the lake. To cope with the